

Bulletproof assessment, war stories, and tactics: Avoiding cybercheating

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Universities have always had policies regarding plagiarism, and have encouraged their staff to enforce high academic standards with regards to the use of other people's work, but the advent of the Internet has made the whole issue of academic misconduct a topic of much discussion within most academic environments. This paper views the fight against cheating as a war against which there are three tactics – fighting with intelligence, fighting with propaganda, and fighting with armour. The paper outlines some of the critical facts of cybercheating, including the ways in which Universities are attempting to combat students copying other's works using technological solutions. It also uses two case studies to highlight some of the ways in which students use technology to cheat, how they were caught, and how some of the cheating can be avoided.

Keywords: plagiarism, cheating, online

Cybercheating

The advent of the Internet has brought academics a surfeit of information, broadened their research, and generally improved the accessibility of courses. However, it has also increased the opportunities for students to cheat by various means. Cybercheating has become so prevalent in Australian universities that the Federal Education Minister, Dr Brendan Nelson has stated that the higher education industry is at risk (ABC, 2003).

Cybercheating covers a wide range of academic misconduct, from cutting and pasting from the Web, to buying papers from papermills and even e-bay. This "Napsterisation" of knowledge (Boynton, 2001) is an inevitable outcome of the e-society in which we live. Students are so used to finding anything they want from the Internet, from music and movies to product information, that they automatically turn to this source when asked to produce an assignment, and believe that information on the Internet is free for appropriation as they wish (Stoney & Stoney, 2001). There are myriad statistics on the prevalence of cybercheating in its various forms. In 2002 it was estimated that up to 14% of Australian university students were plagiarising from the Web (Foster, 2002b), and a review of the statistics collected by www.plagiarism.org shows that almost 80% of students admit to cheating at least once, with 12% of students reporting themselves as serial cheaters. University of California-Berkley officials believe that cheating has increased an estimated 744% from 1993 to 1997 (Overbeck, 2000). This, of course, coincides with the advent of the Internet into common usage in Universities. Interestingly, www.plagiarism.org report that 90% of students believe that cheaters are never caught, or if they are, are not appropriately disciplined. Furthermore, a survey conducted by Aaron and Georgia (1994) cited in (Bricault, 1998), shows that university student affairs officers believe that the problem of cheating has not been addressed adequately.

These statistics show that cybercheating is endemic in Universities around the world, and that academics and administrators have to wage a war to both stop and prevent such cheating. When students are caught cheating, they can become litigious. A recent case at the University of Kent has highlighted this when a student, who plagiarised in his third year of study and was excluded from his course, is now suing the university for not catching him sooner. The student admits to downloading information from the Internet, but claims that he did not realise there was a problem as it was not detected earlier in his course. The student is demanding a refund of his course fees as he can not complete the course in which he was enrolled (Sherriff, 2004).

There have also been cases where students failed for plagiarising have had their marks reinstated. A large Australian university was recently embroiled in such an incident where 15 students received pass marks when they had previously failed. The incident was referred to the NSW Independent Commission against

Corruption, with the university claiming that there had been a misunderstanding of their policy (ABC, 2003).

In such a climate, the issue of plagiarism can rightly be described as a battleground, where a war is waged between students and institutions, and played out using all of the means afforded by contemporary digital technologies. In this contemporary scenario, three main strategies dominate. The war can be fought through intelligence, where knowledge afforded by Internet technologies is the primary weapon. This war is also a propaganda war, as policies and litigation compete for supremacy. Finally this paper argues that the best offence is good defence – bulletproof approaches need to be developed to protect against the onslaught of cybercheating

Fighting with intelligence

Since the cold war, intelligence has been one of the primary tools for war. However, as recent events have shown, decisions made on the basis of intelligence are only as good as the availability, accuracy and ability to use the intelligence itself.

One of the major intelligence tools for plagiarism in the digital age is the World Wide Web. It is an easy task for the educator to use a web search engine with a sample of a student's work to identify whether it already exists on the web. This is probably the most common strategy used by educators to 'trap' plagiarised work. However, when the enemy has the same access to the intelligence that you do, you can end up in a war of digital 'brinkmanship' with each party trying to outplay the other.

One tool provided to institutions is a web based repository of copyright materials that can be used as a benchmark to check students' work. One example of this is Turnitin.com (<http://www.turnitin.com/>). This self proclaimed 'standard in on-line plagiarism prevention' (Turnitin.com, 2004) contains a database of existing publications from a variety of sources. Each time a subscriber submits an article to check for plagiarism that article is added to the database. Plagiarism.org report that 30% of a large sampling of Berkeley students were caught plagiarising directly from the Internet when their assignments were run through a Turnitin.com test (<http://www.plagiarism.org/>).

While an effective digital solution on some levels, the Turnitin approach raises a number of issues. Firstly, its database, while large, is still limited. Secondly, the automatic storage of articles raises its own intellectual property issues, as student work is being "published" to the database, often without their permission (Foster, 2002a). An interesting weakness of this type of software has been highlighted by (Dehnart, 1999) who ran his own thesis through a plagiarism testing service and was told that it was plagiarised. After an examination of the detailed analysis, he found that the company had found a copy of his thesis online and was comparing the two. The worrying aspect of this is that a busy academic may not examine the detailed analysis to pick up such anomalies, and graduate students, in particular, may be falsely accused of plagiarism.

Another issue, that of whether it is ethically appropriate for students to be forcefully contributing to the value of an external commercial entity, is yet to be resolved.

Such approaches are also only useful where plagiarised content takes the form of written articles. In technology based courses, the work may take the form of a digital graphic, audio, animation or computer software product. Solutions to identify plagiarism in these newer digital forms are not so well developed.

It is here where the student has the intelligence advantage. Firstly, they have access to the same digital resources as their lecturers, which already levels the battlefield. Secondly, they are usually much more adept at using digital technologies to source information. In being able to source a broader variety of copyright material than the lecturer may be able to access they can often remain undetected. Add to that the now instant availability of services that offer to complete university assessments for you, and the problem appears insurmountable. These on-line 'paper mills' offer expertise in many areas and provide written work that is often unique and undetectable by plagiarism software.

War Story: When intelligence fails

Although lecturers may be highly skilled in their areas of expertise, they may lack the digital 'savvy' to identify cybercheating. One lecturer describes how he got lucky:

I was running a unit in 3 Dimensional Modelling and Animation. One of the assignments was for students to create a 3D model from a physical toy and create several rendered images of their toy in different settings. On the whole the assignment was completed quite well.

It was only several weeks later when I was browsing one of the 3D web communities that I noticed a forum post by a guy, 'Count Zero' who claimed to have produced a toy in 3D and asking for feedback. I downloaded the files and was amazed to see a 3D scene containing a fully realised toy as well as 6 rendered images that were instantly recognisable as an assignment submitted by one of my students.

I e-mailed 'Count Zero' and found out that he was not my student, but had received a request from someone on a different community asking for help with modelling a toy. He directed me to the original community and thread. When I got there I was stunned to see a post by my student requesting help and submitting scanned photos of his toy. Count Zero, being the community minded 3D artist that he was had gone to the extent of completing the toy for the student and posting the files to the forum.

I was fuming. The whole time, my student had claimed this was all his own work, didn't provide any reference to the forum and hadn't even bothered to re-render or modify the work in any way. I went into the files for both my student and Locust and found that they were exactly the same right down to the smallest polygon.

If it wasn't for the fact that I'm a 3D nut and was a regular lurker on the 3D communities I'd never have caught him! (Extract from interview with Seamus)

Fighting with propaganda

In *Manufacturing Consent*, Noam Chomsky (1988) argued the intrinsicness of propaganda to democracy. When you cannot control people's actions directly, you have to control the way people think. While directed primarily at the media, universities, too, rely on propaganda as their primary tool of control. In the university system, we call it 'education' but while we try to phrase our policies in terms of student centred and constructivist principles, the fact remains that universities are large institutions that communicate ideas in value laden ways:

Universities ... are not independent institutions. There may be independent people scattered around in them but that is true of the media as well. And it's generally true of corporations. It's true of Fascist states, for that matter. But the institution itself is parasitic. It's dependent on outside sources of support and those sources of support, such as private wealth, big corporations with grants, and the government (which is so closely interlinked with corporate power you can barely distinguish them). (Chomsky, 1997)

A section of one large university's strategic plan includes the notion of "professionalism", which is described as "demonstrating the highest standard of professional behaviour in relationships with students, staff and the community".

While professionalism is a somewhat loose depiction of the university's traditional roles, the equal emphasis placed upon seeking new markets and a view of the student as a customer, makes it difficult to argue against the contention that rather than educating students, universities are now in the business of trading in degrees. This raises concerns with regard to the relationship between universities and students over issues such as plagiarism.

Most universities have policies and procedures that are designed to ensure the student is aware of his or her responsibilities regarding plagiarism. This 'propaganda' model seeks to ensure compliance through education. It is a 'carrot and stick' approach to communication.

The carrot is offered in the form of activities and assessments that are designed to teach students about the dangers of plagiarism. Forms that these can take include:

- Providing plagiarism information at orientation sessions
- Providing courses in referencing and study skills

- Incorporating the ‘Intelligence Model’ by using tools such as ‘www.turnitin.com’ as a means of educating students about what plagiarism is.
- Incorporating the notion of “honour” as part of the university ethos (Boynton, 2001).

The stick comes in the form of procedures designed to regulate over transgressions of the plagiarism policy. Students attach assignment cover sheets to their work that require them to sign off on it being free of plagiarism. Some courses have students agree to terms and conditions before submitting electronic assignments. There are also warnings about penalties defined for transgressions permanently available from the student home page.

But the student is your customer and isn't the customer always right? When concerns over issues such as plagiarism are balanced with competing market driven concerns, propaganda starts to become an increasingly ineffectual weapon. After all, threats and persuasion can only do so much.

War story: Negotiating lies

Although Universities have policies that require staff to make every effort to detect plagiarism, there are many staff who believe that it is simply not worth the effort. The following extract from a staff interview highlights some of these issues:

My story involves a postgraduate student (“Edwin”) who was working on a major paper. He was able to pick his own topic, but it had to revolve around a particular theme.

When the paper was submitted to me, I was immediately suspicious due to the fact that it talked about a study, which was not described in the paper, and the fact that the paper did not hang together. I decided to “Google” sections of the paper to see whether any of it had been plagiarised.

I found every part of the paper, which had been “mosaiced” together from 6 websites. None of these websites were cited in the paper, all the cited references being those from the original papers from which this one had been drawn.

I immediately notified the administration of the plagiarism, and Edwin was advised that he had failed the paper (and the unit), and he was supplied with the evidence. I checked some of the work he had done prior to this, and found that had used some of this same material in another paper without it being recognised as plagiarism, although he failed this unit as well. Because he had failed these units, he automatically failed his course. He finished up suing the University for breach of contract. In the end the University refunded his fees with interest. He was also allowed back to the University to finish his course. This has left me feeling powerless, and makes me wonder why I would bother to spend time and effort checking to see whether students are doing the right thing. I also feel for the students who do put in the effort as they finish up with an identical degree to the ones who are academically dishonest. (extract from interview with Amelia).

Fighting with armour

A study by two faculty members from Harvard University and University of Illinois has shown that it is almost impossible to deter students from plagiarising through warnings, instead they found that demonstrating to students the efficacy of plagiarising detection algorithms had a far greater effect (Braumoeller & Gains, 2001), although they do discuss the intellectual property issues outlined earlier in this paper.

This is the failure of propaganda and intelligence approaches. Their ultimate reliance on counteractive measures or a misplaced faith in the intentions of others weakens their value as tactics. If education fails, then an ineffectual counter strike is going to do little to alter the course of the war. What this paper proposes is a pre-emptive measure referred to bulletproof assessment. By building assessment items that are armoured against the possibility of cybercheating, the war itself may be averted. This does not mean that propaganda and intelligence do not have their place; rather they need to be combined with a clear battle strategy to prevent the opportunity of plagiarism in the first place.

Such measures can be built into course outlines before the semester begins. Forms of armour can include:

- Giving the students the resources yourself and requiring them to use only those. Thus students may not be engaging heavily in research but still need to synthesise information in their own ways.
- Getting the students to provide the resources as part of their assessment. Making students provide the original artefacts, such as photocopies of articles, and printouts of web pages brings the intelligence battle down to a level field. Lecturers can easily crosscheck assignments against the references used.
- Making assignments highly contemporary. There are several approaches here. Students can be required to provide very up to date references, which immediately outdates paper mill products, or they be required to contextualise their responses to an up to date medium. An example of this is where students respond to a provided news or journal article using their research as a basis for this response, but requiring them to transform their understandings to critique a specific product.
- Setting a series of developmental steps for the paper. Students then are required to respond to formative feedback, they may need to provide oral reports justifying a position and explaining the terms they have used.

None of these approaches is an instant fix to the problem of cybercheating. Oral reporting can be time consuming, for example, and the affordances of digital technologies in accessing up to date information place constraints upon the tactic of contemporising assignments. To be fully effective, bulletproof assessments require multiple layers of armour and may still involve tactics aligned to intelligence and propaganda. With information being so easily shared through synchronous communication technologies, cyber 'copying' between students is endemic in large units of study, where duplicate assignments are hard to distinguish. Using tools such as turnitin.com combined with assessment strategies that ensure submissions are up to date, adapted to a specific and unique context, and involve formative verification such as staged submission, and oral reporting, many of the current examples of cybercheating can be beaten.

Best of all, bulletproof assessment can make students better learners. Students engage in a process that requires multiple forms of evidence, and a reflection on their performance. A final layer of armour may be the requirement of a metalearning essay where students write an overview of their paper or product, explaining how they went about writing it, describing major obstacles and issues, and outlining what they learned (Harris, 2002). Such self monitoring activities can involve connecting new information to former knowledge, selecting thinking strategies deliberately, and planning, monitoring, and evaluating thinking processes, and are associated with the promotion of student metacognitive skills (Nelson & Narens, 1994).

The war against plagiarism is an on-going one. Digital technologies make it an evolving battle of shifting powers and political intrigue, in which maintaining the edge in knowledge and policy is a continual struggle. The best approach is to combine these with preventative tactics that effectively armour you against the possibility of cybercheating. Bulletproof assessment is the ultimate aim, where the very possibility of plagiarism is limited, and where the inherent limitations of waging the war with propaganda and intelligence are overcome.

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